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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/553,321	06/14/2006	Victor Petrovich Ostani	000131-00020	8990
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WASHINGTON, DC 20037				
EXAMINER				
KINKEAD, ARNOLD M				
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2817				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/553,321

Applicant(s)

OSTANIN ET AL.

Examiner

Arnold Kinhead

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on prel amdt.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,10,11,14,17 and 18 is/are rejected.
- 7) ☒ Claim(s) 3-9,12,13,15,16,19 and 20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB008)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file. The earlier filed priority document does not focus on the phase shift concept.

Specification

The abstract of the disclosure is objected to because the abstract should be provided on a separate paper. Correction is required. See MPEP § 608.01(b).

The disclosure is objected to because of the following informalities: The various headings in the specification such as Background and Summary, etc. would be helpful in reading the text of the specification.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

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2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1,2, 10,11, and 14, 17,18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Petrovich et al(US 6,972,553) and further in view of Adkins et al(US 6,820,469).

The reference by Petrovich et al discloses a sensor circuit(for analytes) using a flexure plate wave type resonator(sensor); see abstract figure. The use of a variable frequency generator is shown(64)to generate a driving signal to the resonator plate via coupler (74). An analyzer(62) is show for monitoring the phase shift and ultimately adjust the phase delay element to maintain the resonant frequency. The frequency synthesizer of Petrovich et al shows the variable frequency gen(64).A reference signal (input, 98) is shown. The adjustment signal being input to the VCO(64).

The reference by Petrovich et al does not highlight the characteristic voltage and current parameters of the plate during the adjustment, however, the reference by Adkins et al is relied on for this. Also, the reference by Petrovich et al has a general plate sensor whereas, the Adkins et al reference is

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relied on to show use of an equivalent piezo resonator type, please see col. 3, lines 57-65,

"...The paddle 13 is preferably a non-magnetic, semiconducting or insulating thin plate, which typically can be silicon, polysilicon, silicon nitride, silicon dioxide, or a polymer. Alternatively, other thin-film materials can be used. Alternatively, the paddle 13 can be a conducting material with a thin insulating film (not shown) ..."

The reference by Adkins et al discloses an apparatus for oscillating a surface where analytes are absorbed(see abstract), see figures 1,2,3 where the resonator is controlled and as noted below:

Please see col. 10, lines 35-45 "...An alternative approach to determining the resonant frequency ω_n is to track the phase difference between the drive voltage and drive current. If the resonator 10 is operated at a constant frequency near resonance by a frequency-controlled circuit, then minor changes in mass on the paddle 13 will cause a shift in the phase difference between the drive voltage and the drive current, as indicated by eq. (10). ..."

In light of the above it would have been obvious to one of ordinary skill in the art to have recognized that the general resonator of Petrovich et al could be a piezo type equivalent used for sensing as shown in Adkins et al and that the voltage and current parameters are inherent as highlighted in Adkins et al during the driving signal application across the resonator surface for use in adjusting the phase shift.

Allowable Subject Matter

Claims 3-9, 12,13,15,16, 19,20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arnold Kinhead whose telephone number is 571-272-1763. The examiner(now hoteling) can normally be reached on Mon-Th(8:00am-6:30pm); voicemail is checked daily and I will return your call within one business day(unless on vacation).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pascal can be reached on 571-272-1769. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Arnold Kinkad/
Primary Examiner, Art Unit 2817